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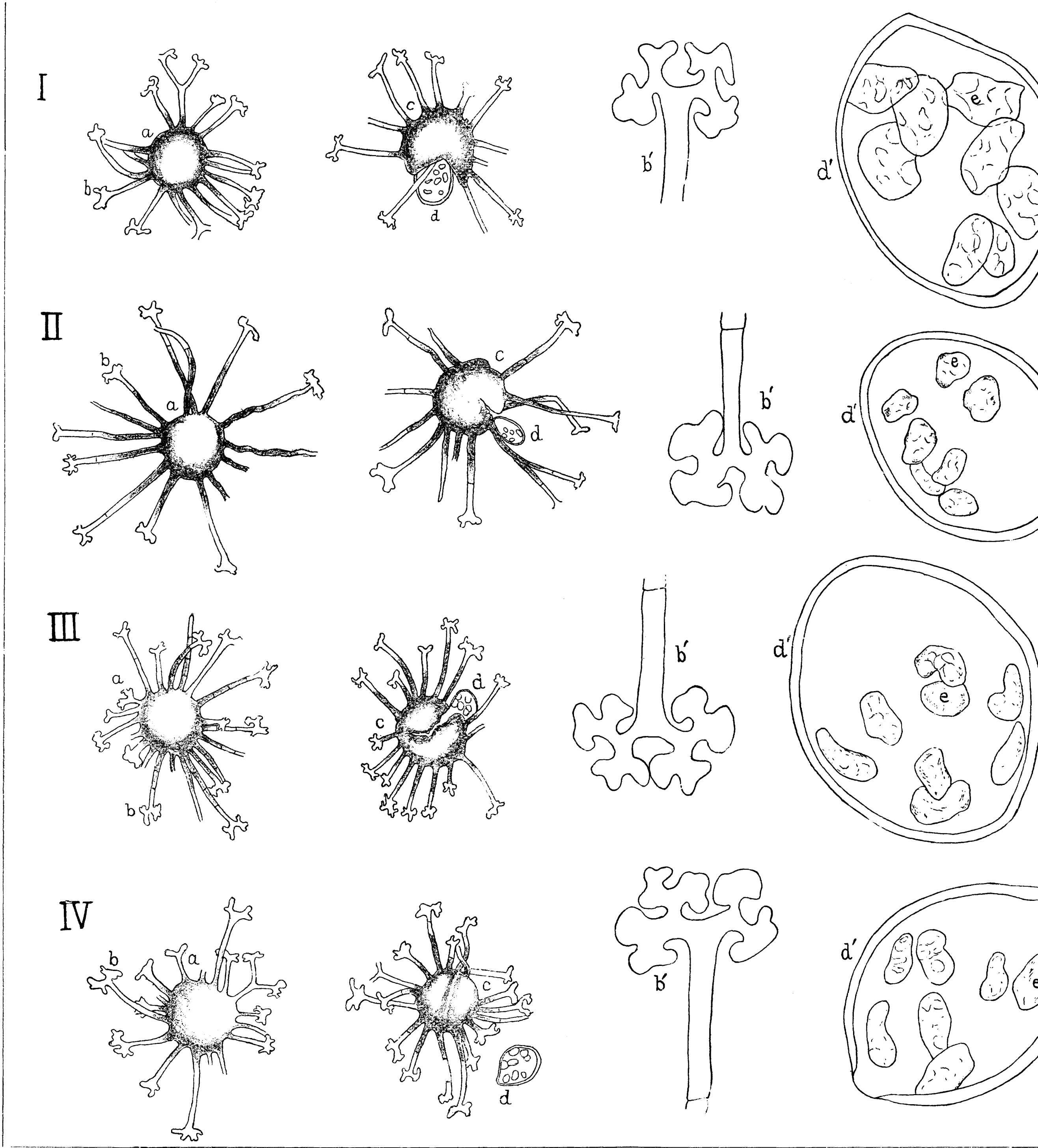
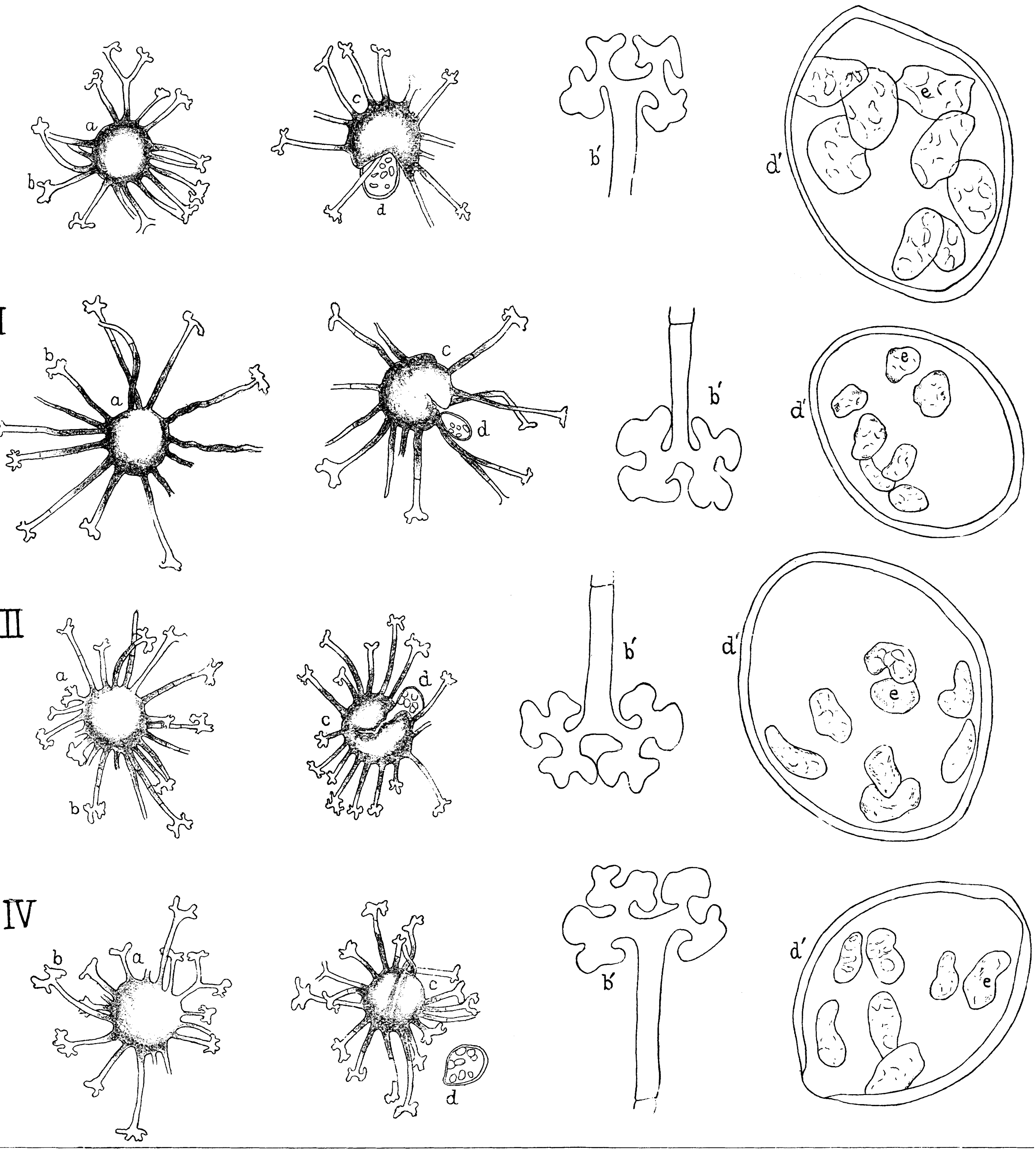


MERRY on MICROSPHÆRA FULVOFULCRA COOKE.



MERRY on MICROSPHÆRA FULVOFULCRA COOKE.

donable in philosophy, should not be carried too far in natural science. Of course, no celebration of our national anniversary is complete without a balloon ascension, and the more gas the better, provided the aeronaut, or, as the papers generally call him, the professor, only lands safely. So our society sends up its annual balloons in the shape of addresses in which the professors are allowed to soar above, though not out of sight of, facts. But they must not remain too long up in the air, and the gas for their balloons should be generated in the laboratory of experience and study. In their every-day work, it seems to me that the attitude of botanists, at the present day, is the correct one. Following the prevailing tendency in business affairs, the question they ask of plants is not so much, "Who is your father, and where did you come from?" as "What can you do?"

The identity of Podosphæra minor Howe and Microsphæra fulvofulcra Cooke.

MARTHA MERRY.

(WITH PLATE XI.)

About two years ago, while making a study of the American forms of the genus Microsphæra, the *M. fulvofulcra* Cooke came to my notice. The specimen examined was from the Ellis collection of North American fungi, No. 1,321. The so-called species is described in an article on "Californian Fungi," by Rev. J. E. Vize, in *Grevillea*, vol. v, p. 110, where it is said, "asci not seen." Examination of mature specimens shows clearly a single ascus in each perithecium, thus placing it in the genus Podosphæra. It agrees with the description of *Podosphæra minor* Howe, thus necessitating the cancellation of *Microsphæra fulvofulcra* Cooke.

Several specimens of the so-called Microsphæra fulvofulcra from different localities have been examined and compared with the original specimen of *Podosphæra minor* Howe. In all essential characteristics they agree. There are slight variations, arising probably from differences in hosts, vigor of growth, locality, age, etc.; but these variations are not marked. In many cases on the same leaf intermediate forms may be seen which unite the characteristics of the different specimens. They may all be embraced in the following description, a part of which is quoted from Mr. Howe's original description in *Bulletin Torrey Bot. Club*, v, p. 3:

"PODOSPHÆRA MINOR *Howe.* Conceptacles scattered or crowded; appendages 10–20, as long or a little longer than the diameter of the conceptacles.[1]—Leaves of Spiræa."

Mycelium amphigenous, dense on upper surface of leaf, sparing, arachnoid below.

Perithecia amphigenous, usually gregarious, and abundant above, scattered on under surface, reticulated, ranging from .071 to .0968 mm. in diameter, often .08.

Appendages 8–22, or even more, often 12, 17, 16, 21, from ½–2 times the diameter of the perithecium, septate usually 3–4 times, rarely 7, branching dichotomously 3–4 times, divisions sometimes divaricate, smooth or hyaline, color brown, shading from base to last septum, branches and last cell transparent, ultimate lobes usually merely turgid, occasionally revolute.

Ascus oval from .068×.045 mm. to .065×.0732 mm.

Spores 6–8, irregular in form, granular, .00726×.0209 to .0197×.0141 mm. Usually filling about one-half the ascus cavity.

The specimens which have furnished the essential material for the notes recorded in this paper, and some of which, accompanied by their respective numbers, are figured in the plate, were derived from the following sources:

No. I. *Podosphæra minor* Howe, on Spiræa tomentosa, from herbarium of E. C. Howe; a part of the original material from which the species P. minor was described.

No. II. "*Microsphæra fulvofulcra* Cooke," "on Spiræa salicifolia, from Providence, R. I.; No. 204; collected by N. M. Mason." Described in *Grevillea*, v, 110. Dr. Harkness, from whom it was received, says it is a part of the original material from which the "*M. fulvofulcra* Cke." was described and named. The collection number, "204," on the label of II is, moreover, identical with the number accompanying the description in *Grevillea*. The appendages are somewhat fewer and longer than in I, and the spores smaller.

No. III. "*Microsphæra fulvofulcra* Cooke," from herb. of Dr. Harkness; communicated by J. B. Ellis; on Spiræa tomentosa, probably originally from E. N. Amer. The under leaf surface of the host is strongly hirsute. The specimen is characterized by a less dense mycelium than I and II, a greater number of appendages (often 21), which are shorter, with heavier branches, presenting in all respects a more vigorous growth. On the same host-specimens forms were found with fewer appendages (12), in which case they are longer, with more frequent septa, thus approaching No. II.

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[1] The remaining part of the description has resulted from careful examination and measurement of a sufficient number of specimens to give a basis of characterization.

No. IV. "*Microsphæra fulvofulcra* Cooke," ex herb. W. A. Kellerman, on Spiræa tomentosa; Fairfield Co., Ohio, Oct., 1882; the same as 1,323 of the Ellis collection of North American fungi. This form is almost identical with No. I. Whatever slight distinctions there may be bring it nearer No. III. The branching approaches III. The septa are less distinct.

After a careful review of this somewhat important material, it seems conclusively demonstrated that these forms are the same. In a note in the *Journal of Mycology*, June, 1885, Mr. Ellis referred to the error in his "North American Fungi," and rejects the species *Microsphæra fulvofulcra* Cooke. He also says that the error fallen into by Cooke has been repeated by Dr. Winter in his Exsiccati no. 3,045. The specimens examined agree with the description of forms on Spiræa tomentosa in "Notes on the Am. Forms of Podosphæra," by F. S. Earle, published in Bot. Gazette for February, 1884. Whether they should be known as *P. minor* H. or as *P. Oxyacanthæ* DC., as held by Mr. Earle, I am not prepared to say. At all events, they are clearly the same as his form, numbered (4).

To substantiate the above statements the accompanying camera-lucida drawings are offered. The numbers on the plate correspond to those in the preceding notes.

Plate XI.—I. *Podosphæra minor* Howe, on Spiræa tomentosa, from E. C. Howe. II. The "*Microsphæra fulvofulcra* Cke.," on Spiræa salicifolia, Providence, R. I.; the "204" of the Harkness herb. III. "*M. fulvofulcra* Cke.," on Spiræa tomentosa, from Harkness herb. IV. "*M. fulvofulcra* Cke.," on Spiræa tomentosa, Fairfield Co., Ohio, from W. A. Kellerman; the same material as the "No. 1,323" of the Ellis Coll. "N. Amer. Fungi."

a = perithecium × 85 diam.
b = appendage × 85 diam.
c = broken perithecium × 85 diam.
b′ = appendage × 375 diam.
d = escaping ascus × 85 diam.
d′ = ascus × 375 diam.
e = spore × 375 diameters.[2]

[[2] Dr Peck, of the N. Y. S. Museum, forwarded two sets of specimens of the Podosphæra discussed in this paper, which were collected in Eastern N. Y., but arrived after Miss Merry had completed her work and left Ithaca. Several preparations of each were examined by myself, however, and measurements were recorded. The results are worth mentioning, because they are directly in the line of certain conclusions in the above paper, viz.: that differences of host or position occasion variations in the perithecia and the appendages of the parasite. In specimens from Spiræa salicifolia the appendages of the perithecia were from 9 to 12 in number, and in length from 1¾ to 2 times its diameter; spores 8 (and either 7 or 8 in the next). This clearly approaches the characters of the specimens on S. salicifolia already figured under II. Those on Dr. Peck's specimens of Spiræa tomentosa had from 16 to 19 or more appendages—in one case 27—whose length was from ¾ to 1¼ the diameter of the perithecium, thus agreeing with specimens on S. tomentosa figured in this paper. Furthermore, the specimens from the under surface of the S. tomentosa leaves had fewer (often only 12-15) and longer appendages than those on the upper side.—W. R. Dudley.]